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ABSTRACT

Three major national longitudinal studies have been conducted in Great Britain, each based on a week's births in, respectively, 1946, 1958, and 1970. This paper focuses on the implications for educators of the findings of the 1958 study, which examined the development, over 23 years, of approximately 5,000 children born in Britain in one week of 1958. Originally intended as a health-oriented study, the cohort also examined the educational and social characteristics and progress of its subjects and the interrelationships among these different aspects of their lives. One of the most important characteristics of the study has been its ability to study various kinds of change: in patterns of relative attainment in school, for example; in the effects of changing schools upon a child's educational development; or in the effects of other phenomena, such as test score placement, upon pupils' development. Even more importantly, the study has changed the researchers' own stereotyped perceptions of the nature of children and childhood. Several problems of large-scale longitudinal studies must be acknowledged, however, including compromising long-term goals to satisfy funding agencies' wishes for short-term results, lack of sufficient collaboration between the studies, and underexploitation of data. A list of 13 references is appended. (IW)

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The British Experience: the 1946, 9158 and 1970 National Cohorts

Background and History

In describing the British experience with national longitudinal studies, I am obviously limited to a very brief summary of what now amounts to 40 years work.

There are in fact three such studies in Britain, each based on a week's birth in, respectively, 1946, 1958 and 1970. It is the middle one of these, the 1958 Cohort, also known as the National Child Development Study with which I have been involved for the past 14 years, and on which I will therefore draw for most of my examples.

Firstly, a brief outline of the three studies, emphasising their common features, but also drawing attention to their differences.

All three have grown out of what were originally health-oriented perinatal studies, set up to examine factors associated with perinatal mortality and handicapping conditions. Each took as their initial sample all the babies who were born in one week in the relevant year, a total varying from approximately 14,000 to 17,000.

For subseqeunt follow-ups, each has broadened their focus. They have continued to study health and physical development but have also examined the educational and social characteristics and progress of their subjects, and the inter-relationships among these different aspects of their lives.

For its follow-up stages the 1946 Cohort (the National Survey of Health and Development) took a sample of the original births, weighted by social class, giving a total of approximately 5,000 for inclusion in subsequent stages. Both the 1958 and 1970 Cohorts attempted to follow-up all survivors from the original births. The 1958 Cohort has in fact added to these, by also including (up to the age of sixteen) new cases who were born in the same week but did not take part in the perinatal study - mainly those who entered the country since their birth.

Data Collection

The pattern of major follow-ups during the school years was similar for the three studies, but with some variation in the exact age at which information was collected. For the 1946 Cohort these took place at ages eight, eleven and fifteen, for the 1958 Cohort at seven, eleven and sixteen; and the 1970 Cohort was followed-up at five and ten and is currently involved in a further round of data collection at age sixteen.

The two earlier studies have continued into adulthood, major stages of the 1946 study having been conducted at twenty-six and thirty-one, and of the 1958 Cohort at twenty-three, Both have supplemented these on other occasions with the collection of either limited information on all subjects or more extensive information on small sub-samples.

To describe in any detail the methods of data-collection and the information collected for all three studies would be a major exercise in itself. However an indication of the breadth of information now held can be obtained from the brief summary below of the major stages of the 1958 study. A fuller account is available in a paper by my colleague Peter Shepherd (1985).

At birth (1958) a questionnaire was completed by the attending midwife, after an interview with the mother and with reference to available records. Information recorded included: social and family background, past obstretric history, details of the pregnancy and labour and on the sex, weight, progress, management and outcome of the infant.

At seven (1965) eleven (1968) and sixteen (1974):

(i) Parental Interview - the parents (usually the mother) were interviewed by a health visitor. Some variation from age to age, but the areas covered have included: father's and mother's occupation, length of their education, smoking habits, aspirations and expectations for the child's future education and employment, family relationships, parent - school contacts, sources of income and indices of poverty, housing circumstances, the child's health and medical history, and behaviour ratings.

(ii) Medical Examination - a systemic examination carried out by local authority medical officers, including tests of vision, hearing and speech, measurement of height and weight and assessment of pubertal development.

(iii) School questionnaire - completed by headteachers and class teachers to give background information about the school, such as its type, size, social composition and some aspects of the curriculum, and information about the child, such as ability ratings, attendance record, behaviour ratings, and details of his/her class.

(iv) Attainment Tests: these varied, but at each age included tests of reading and mathematics

At eleven and sixteen: a personal questionnaire. At eleven this was brief and contained questions on leisure activities and attitudes to school.

At sixteen a more substantial questionnaire included questions on: attitudes to school, educational and occupational aspirations and expectations, reasons for leaving school and choosing a job, school absence, self-ratings in school subjects, spare-time work, income and pocket money, intentions about marriage and having children, leisure activities, family relationships, smoking and drinking.

At twenty (1978): schools and other educational institutions provided details of the individuals' public examination results and entries.

At twenty-three (1981): subjects were interviewed and provided information on: employment and unemployment; apprenticeships and training; post-school education; marriage, cohabitation and children; housing and household; incoming and savings; health and health-related behaviour; leisure activities.

The above summarises only the major stages where the attempt was made to obtain information on all surviving members of the Cohort resident in Britain. In addition a number of special studies on sub-samples have been carried out, where more detailed information relevant to that particular group has been collected, for example on the mentally and physically handicapped, children in single-parent families, adopted children, and the 'socially disadvantaged'.

Response

The response levels achieved by all three studies have been generally satisfactory. During the school years, at each stage, they have succeeded in tracing and obtaining information on some 90% of the target group. Not surprisingly, in early adulthood the response is somewhat lower. At age twenty-three, the 1958 study interviewed 78% of those known to be alive and still in Britain.

A rarely-emphasised advantage of longitudinal studies is their ability to monitor any bias due to response patterns, by comparing respondents and non-respondents at any stage in terms of their data from earlier stages of the study. Where such analysis has been carried out the results have been generally reassuring. For example, differences between respondents and non-respondents to the 16-year stages of the 1958 Cohort are small or non-existent in relation to indices such as social class, region, atainment test scores and measures of physical development. However there is evidence of slight under-representation of certain disadvantaged groups, such as the illegitimately born and those who have been in public care.

At twenty-three biases are again small, although those interviewed do come slightly more often from middle-class backgrounds and differ in other characteristics which can be predicted from this. The sole substantial bias by this age is that young people from ethnic minority background are under-represented.

The Contribution to Educational Research

It will be apparent from the brief description above that these studies were not designed solely, or even primarily, to be about education. Their contribution has been as least as great in the health field and to other aspects of social research, such as housing and family structure.

Indeed, one of the major benefits of studies such as these is their ability to study educational experience and progress in the context of these other aspects of the subjects' lives. It is possible to assess the relative influence on, for example, educational attainment, of school-based variables as against other factors in the home and the family. It is possible to take account of differences between children in these other respects in attempting to refine our understanding of causal relationships, and we are able to study statistical interactions, to assess whether the influence of particular educational variables is greater for some groups of children than others.

However, these benefits flow from the breadth of these studies and the range of information which they have collected on their subjects, rather than from their longitudinal characteristics. The examples which are presented extremely briefly below are selected to illustrate topics which I beleive can be explored satisfactorily only by studies which have studied the same individuals over a substantial period.

This is not the place for a comprehensive review of the educational findings of even one of the studies. Again, my few illustrative examples are drawn from our work on the 1958 Cohort, but I would not wish to undervalue the contribution of the other two national studies. For example, findings from the 1946 Cohort were extremely influential in the early years of the debate in Great Britain about selection for different types of secondary school at the age of eleven (eg Douglas, 1964; Douglas et al, 1968), and the 1970 study has recently published important findings on pre-school experience and its long-term influence (Osborne et al, 1984).

Perhaps the most obvious, but nevertheless important, characteristic of longitudinal studies is their ability to study change. If asked, as I sometimes am by our friends in the media, to identify the single most important finding from the 1958 study, I respond in terms of what it has done, I hope, to change our perception of the nature of children and of childhood. In our professional relationships with children we all too often describe them, perhaps tacitly, as having characteristics which we assume are stable. We attach labels such as 'low ability', 'low social class', disadvantaged', or 'from a broken family' as if they are permanent attributes. Studying young people over time reveals a far more turbulent picture. To take one very fundamental example, one in eight of the 1958 Cohort had by the age of sixteen experienced being brought up by a single parent. However, fewer than one in three hundred fitted the sterotype of having been born to and then brought up by a lone mother throughout their childhood. The remainder demonstrated a variety of patterns, moving into and out of this situation, often more than once as they grew up (Essen and Lambert 1977).

We also find substantial change when we examine patterns of relative attainment in school. For example, one in eight of those whose scores on the study's attainment tests fell in the top third at the age of seven are found in the bottom third when tested at sixteen; and a similar proportion show comparable change in the other direction. Such patterns are of particular significance in the British system, as the top third broadly represents those who will take the more academic examaitons at sixteen, and may go on to further or higher education, while the bottom third will take lower level examinations or none at all, and be faced with limited employment opportunities (Essen et al, 1978).

However, even that last statement assumes a level of continuity which is not altogether supported by findings from our follow-up at twenty-three. We identified significant numbers of children whose school record was dismal and who left with no or extremely poor qualifications, but who by that age had succeeded in obtaining relatively high-level qualifications. Most had done so via work-based training courses, thereby raising obvious questions about their ability and/or motivation as demonstrated in their schools (Fogelman, 1986).

An aspect of change which is perhaps of more direct relevance to the use of longitudinal studies for planning and policy purposes in education is the ability to take inputs into account - that is, to make allowance for what children were like before they experienced the phenomenon which is of interest.

Probably the best known example of this from our own work is the comparative study of pupils in comprehensive secondary schools (in theory 'all ability' schools) and selective schools (grammar schools for the academically most able and secondary modern schools for the rest). Cross-sectional analysis at sixteen showed the pupils of selective schools obtaining significantly higher average attainment tests scores then the pupils of comprehensive schools. However, test scores and other characteristics at the age of eleven (ie before the pupils have transferred to their secondary schools) demonstrate that the comprehensive pupils were already considerably disadvantaged (no doubt reflecting the political and social complexions of those areas which were the first to adopt the comprehensive system). Once multivariate analyses took into account such initial differences, contrasts at the age of sixteen virtually disappeared. (of course this simplified summary is a travesty of the original work - see Steedman, 1980).

A similar approach has been used to study the effects of changing school. Earlier, cross-sectional, research on children from mobile families had found that the attainment of such children was depressed, as a result, it was suggested, of having to change school. Again, attainment and other background characteristics prior to changing school were found to be sufficient to explain the relationship between mobility and subsequent atainment (Blane et al. 1985).

Essentially the same methods are now being used by Alan Kerckhoff, who is carrying out analyses of the 1958 Cohort data to study the effects of ability-grouping (tracking) in the secondary school.

Some Problems

Having vaunted some of the benefits of large-scale longitudinal studies, I should also acknowledge that they are not without their difficulties. Cost, time-scale and administrative complexity are the most obvious ones. However, these are discussed interminably in other places. Instead I wish to mention three issues which are perhaps less obvious.

(i) Funding: I do not want, on this occasion, to lament the under-resourcing of the studies and the energies which have to be diverted into keeping them going. Instead I refer here to the nature of the funding. Studies such as these are expensive (though I would argue that they are good value), and, for that reason, they have been funded largely by government rather than research councils (the 1946 Cohort is an exception). The 1958 cohort has had to obtain separate funding for each of its follow-ups, and all but one have been funded directly by one or more government departments. The five year grant for the work associated with the 23-year follow-up came form a consortium of five departments: Health and Social Security, Education and Science, Environment, Employment and the Manpower Services Commission.

The problem with funding of this kind is that the priorities, and the time-scale, of government departments are quite inimical to the needs of a long-term study. Furthermore such departments in Britain are now extremely directive towards the research which theyfund, and they are, understandably, more concerned with obtaining information of short-term policy relevance than with the more scholarly issues which should be the first priority of these studies. Thus, there was pressure on the research team, from questionnaire design through to analysis, to address issues which arose primarily from consideration of the study as a large cross-sectional survey, and which paid little regard to building on what had gone before.

(ii) Collaboration Between the Studies: the issue on which the three national studies are probably most vulnerable to criticism is the lack of co-operation between them. Of course we talk to each other, exchange questionnaires and read each other's publications, but at no time has there been any real joint planning to take proper advantage of the existence of the twelve-yearly series. There have been occasional examples of analyses planned and conducted in collaboration, and publications jointly authored, but these have been relatively rare.

In part, this again reflects the funding situation described above, and the intense pressure on researchers to meet short-term contractual commitments, but the williness and motivation to work together has not always been as great as it should have been.

(iii) Under-exploitation of the Data:

The body of work produced by the studies, and their publications, are substantial. However it is inevitable that the primary research teams have not exhausted all the possibilities of the data they now hold. The reactions to this of the studies has varied. All have welcomed other researchers who wished to join them in order to work alongside the research team. However only one, the 1958 Cohort, has made its data routinely available for secondary analysis. Admittedly, we are sometimes nervous about this, but on balance believe that the benefits far outweigh the potential problems.

All the study's data are deposited with the ESRC Data Archive and thereby available to other researchers. In the past we have not had adequate resources to prepare documentation of a kind that the potential secondary analyst would find most helpful, nor the time to give proper information and advice. However, we do now have a grant for a 'User Support Group' which has been established precisely to promote and encourage the use of the study's data. Currently, there are about 50 researchers in Britain who have had access to the data. There are a few outside Britain - notably Professor Kerckhoff - but we are eager to see this number grow.

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